



## **Cross-border Energy and Capacity Trading**

### **Intra- and international experiences in the Western Interconnection**

August 20<sup>th</sup> 2018

Hyatt Regency Long Beach

200 South Pine Avenue

Long Beach, California, USA

(Held on the side of the Electrification 2018 international conference)

Power system integration can be a tool for improving electricity security, reducing system costs, and enabling the integration of variable renewable resources. For example, rising penetrations of variable renewable generation in the Western Interconnection is driving increased regional collaboration, for example through the development of the Western Energy Imbalance Market (WEIM). One question that has arisen is the extent to which the potential benefits of regional collaboration would extend to greater integration of Mexico's Baja California power system with the California Independent System Operator (CAISO) system in the United States.

In this context, the International Energy Agency (IEA) and Electric Power Research Institute (EPRI) are jointly organizing a workshop to better understand the state of integration of the Mexican Wholesale Market and CAISO, and to engage in a broader discussion on the question of cross-border power system integration. This workshop will engage relevant stakeholders to discuss opportunities from and obstacles to further integration, while also allowing other relevant IEA member countries to learn from the CAISO-Mexico example, and bring their own experiences to bear.

#### **Background**

The first stage of the IEA's work on "Electricity Security Across Borders" has focused on a "stock-taking" exercise in the form of a series of case studies. Two common elements have emerged from these case studies. First, successfully integrating large shares of variable renewables requires increased real-time cross-border collaboration. Second, there is a growing interest in establishing the trade of *capacity* across borders. Capacity trading is of particular relevance to the question of electricity security, as without trade in capacity jurisdictions are less likely to rely on their neighbours to meet system needs in times of stress. This can lead to overdevelopment of domestic or local capacity, which can in turn impact the cross-border trade of energy.

Through the organisation of this workshop, the IEA and EPRI seek to highlight lessons learned through various case studies to an audience interested in better understanding the potential impact of cross-border capacity trading. The IEA and EPRI will encourage input from Mexico, the United States, and a relevant group of expert stakeholders, allowing these lessons learned to not only inform the question of cross-border energy trading along the U.S. Mexico border and elsewhere.

The meeting will be informal in nature and held under Chatham House Rule. Attendance is by invitation only.

## Draft Agenda

|               |   |
|---------------|---|
| 07:30 – 08:30 | BREAKFAST AND REGISTRATION  |
| 08:30 – 09:00 | <p>Opening remarks</p> <ul style="list-style-type: none"> <li>• <b>Peter FRASER</b>, Head of Gas, Coal and Power Markets Division, IEA</li> <li>• <b>Anda RAY</b>, Senior Vice President, External Relations, EPRI</li> </ul>   |
| SESSION 1     | BENEFITS AND CHALLENGES OF COORDINATED PLANNING   |
| 09:00 – 10:30 | <p>Power system planners around the world have long recognised the benefits of regional power system integration. At the same time, cross-border integration requires coordinated planning and operations. This session will look at examples from North America and Europe in order to highlight the benefits and challenges of regional integration.</p> <p><i>Moderator:</i> <b>David HUNTER</b>, Senior Government and External Representative, EPRI</p> <p><i>Panelists:</i></p> <ul style="list-style-type: none"> <li>• Why integrate power systems? Lessons from Electricity Security Across Borders<br/><b>Matthew WITTENSTEIN</b>, Senior Electricity Analyst, IEA</li> <li>• Regional power system planning: Examples from North America<br/><b>John TABER</b>, Technical Leader, EPRI</li> <li>• The North American Renewable Integration Study<br/><b>Greg BRINKMAN</b>, Researcher, Grid Systems Analysis Group, NREL</li> </ul>  |
| 10:30 – 11:00 | COFFEE BREAK  |
| SESSION 2     | CROSS-BORDER ENERGY TRADING: CURRENT PRACTICES IN THE US  |
| 11:00 – 12:30 | <p>This session will focus on the current experiences energy trading among US market participants. Participants will discuss the development of the Western Energy Imbalance Market's technical underpinnings and governance frameworks, and how the WEIM fits into the Western Interconnection more broadly. It will also invite participants from other parts of the United States to share relevant experiences.</p> <p><i>Moderator:</i> <b>Peter FRASER</b>, Senior Government and External Representative, EPRI</p> <p><i>Panelists:</i></p> <ul style="list-style-type: none"> <li>• Development of the WEIM: Drivers of integration and technical challenges<br/><b>Roberto BAYETTI</b>, Director of QA, Architecture and Model Management, CAISO</li> <li>• Regulatory and policy drivers of cross-border integration<br/><b>Scott MILLER</b>, Executive Director, Western Power Trading Forum</li> <li>• Power trade between RTOs/ISOs in the Eastern Interconnection<br/><b>TBD</b></li> </ul> |
| 12:30 – 13:30 | LUNCH   |

| SESSION 3             | CROSS-BORDER ENERGY TRADING: INTERNATIONAL PERSPECTIVES  |
|-----------------------|--|
| 13:30 – 15:00         | <p>This session will focus on the current experiences and the future potential for international power trading. Specifically, it will discuss the evolution of the current market arrangements, with views from all three relevant countries (Canada, the US, and Mexico) represented.</p> <p><i>Moderator:</i> <b>Matthew WITTENSTEIN</b>, Senior Electricity Analyst, IEA</p> <p><i>Panelists:</i></p> <ul style="list-style-type: none"> <li>• Perspectives on joining the WEIM: the view from Mexico<br/><b>Marcos VALENZUELA</b>, Centro Nacional de Control de Energía (CENACE)</li> <li>• Canada and the WEIM<br/><b>Mike MACDOUGALL</b>, Director, Trade Policy, Powerex</li> <li>• Trading power with Mexico<br/><b>Eduardo ARRIOLA</b>, Subdirector for Generation, CFE</li> </ul>                                     |
| 15:00 – 15:30         | COFFEE BREAK   |
| SESSION 4             | ESTABLISHING CROSS-BORDER CAPACITY TRADING   |
| 15:30 – 17:00         | <p>The final session of this workshop will be a deep-dive into what would be required to establish cross-border capacity trading between Mexico and CAISO. Relevant examples will be brought in from other US markets and international experiences (in particular, Europe).</p> <p><i>Moderator:</i> <b>TBD</b>, EPRI</p> <p><i>Panelists:</i></p> <ul style="list-style-type: none"> <li>• Technical and legal changes required to trade capacity with Mexico<br/><b>TBD</b>, CAISO</li> <li>• Capacity trading between ISOs/RTOs – technical requirements and existing procedures<br/><b>Craig GLAZER</b>, Vice President – Federal Government Policy, PJM</li> <li>• Technical and legal changes required to import capacity to Mexico<br/><b>Ivan CAJEME VILLARREAL</b>, Secretaría de Energía de México (SENER)</li> </ul> |
| 17:00                 | Closing remarks  |
| FOLLOWED BY RECEPTION |  |